IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF OHIO
EASTERN DIVISION

IN RE NATIONAL PRESCRIPTION OPIATE LITIGATION	**MDL No. 2804** **Case No. 17-md-2804** **Judge Dan Aaron Polster**

This document relates to:
The County of Cuyahoga v. Purdue Pharma L.P., et al., Case No. 17-OP-45004

The County of Summit, Ohio, et al. v. Purdue Pharma L.P. et al.,
Case No. 18-OP-45090

REPLY IN SUPPORT OF DEFENDANTS' MOTION TO EXCLUDE MEREDITH ROSENTHAL'S OPINIONS AND PROPOSED TESTIMONY

TABLE OF CONTENTS

Page

TABLE OF AUTHORITIES

Page

Cases

Plaintiffs' Opposition doubles down on a failed and inapplicable liability theory. From the outset, Plaintiffs have fought all efforts to require them to identify medically unnecessary prescriptions resulting from allegedly fraudulent marketing; instead, they have decided to rely strictly on generalized, aggregated data. Such data prohibits identifying or quantifying each Defendant's allegedly improper conduct. Rather, Rosenthal used this data to construct a model that simply purports to compare the number of times sales representatives visited doctors (*i.e.*, detailing) with the number of prescription opioids sold. At best, the results of this model might suggest that detailing correlates with sales. Plaintiffs cannot use such a model to prove their claims, which require far more extensive and rigorous proof of causation than Plaintiffs have.

Plaintiffs apparently recognize as much. Thus, in their attempt to ascribe meaning to Rosenthal's conclusions, they instructed Rosenthal to assume that ***all*** of Defendants' promotional activity was unlawful. (Rosenthal Rpt. at ¶ 75 (Dkt. 1999-22/2000-23).)[1] And they dig the proverbial hole deeper in their Opposition by claiming they will prove "that ***all*** of Defendants' promotional activity was fraudulent" and that "***every*** opioid prescription written" after certain Defendants began marketing opioids for chronic noncancer pain in 1995 "was infected by fraud." (Opp'n Br. at 5 (first emphasis added).) This theory lacks legal and factual support, and should result in dismissal of Plaintiffs' claims for the reasons explained in Manufacturers' preemption and causation briefing. Indeed, it is undisputed that the prescription opioids at issue here are FDA-approved medicines and that marketing these medicines consistent with information in their FDA-approved labels is lawful. Plaintiffs have no proof that all detailing was fraudulent, and thus, Rosenthal's assumption to the contrary is not based in reality, conflicts with the record, renders her opinions useless in this litigation, and would only confuse the jury, not assist it.

[1] Initial citations to expert reports and deposition transcripts include docket numbers for sealed and public versions.

Fit issues aside, Plaintiffs offer no compelling defense of the unprecedented methodology that Rosenthal employed here. For instance, Plaintiffs cannot justify Rosenthal's use of a negative depreciation rate or the failure of her model to conform to real-world events. The only explanation (and the correct one) is that she "overfit" her model to reach the conclusions Plaintiffs dictated to her. Moreover, after removing medical assumptions that she has no qualifications to make, her self-described "thought experiment" amounts to nothing more than the application of basic arithmetic and is thus inadmissible. Plaintiffs' attempts to defend Rosenthal's methodological failings—like the stationarity and endogeneity issues permeating her model—are unconvincing.

For these reasons, the Court should exclude Rosenthal's opinions and proposed testimony.

I. ARGUMENT

A. Rosenthal's Opinions Fit Neither the Allegations nor the Evidence of this Case.

Rosenthal's expansive and unprecedented causation opinions do not fit any cognizable liability theory for several reasons.

First, Plaintiffs admit that Rosenthal's opinions depend entirely on the baseless assumption that "all of Defendants' promotion of opioids was unlawful." (Opp'n Br. at 13.) But Rosenthal did not attempt to analyze "all of Defendants' promotion," and instead focused on detailing only. And in light of her assumption, she "did not separate lawful from unlawful detailing in measuring overall impact of Defendants' marketing." (*Id*. at 6.)

Rosenthal herself, however, acknowledged that pharmaceutical promotion can be lawful. (Rosenthal Tr. at 153:25–154:5 (Dkt. 1970-11/1984-4).) Likewise, David Cutler (another of Plaintiffs' experts) authored an article explaining that drug promotion can increase patient welfare. (*See* David M. Cutler et al., *The Value Of Antihypertensive Drugs: A Perspective On Medical Innovation*, Health Affairs 26, no. 1 (2007) (Dkt. 1913-6).) And Plaintiffs' experts have expressly conceded that lawful promotion occurred here—in direct conflict with Plaintiffs' pledge to prove

otherwise. For example, Plaintiffs' regulatory expert David Kessler opined that Defendants' conveyance of corrective information to prescribers was appropriate. (*See* Kessler Tr. at 758:10–760:8 (Dkt. 1963-16/1979-9).) Similarly, their marketing expert Matthew Perri III acknowledged that numerous marketing materials contained statements taken directly from the drug's FDA approval letter and FDA-approved label. (*See* Perri Tr. at 581:10–596:4 (Dkt. 1969-8/1983-5).) And their pain-management expert Dr. Mark Schumacher admitted that, although sales representatives detailed opioid medications to him, he could not recall a single instance in which he received information that he believed was false or misleading. (*See* Schumacher Tr. at 109:8–17 (Dkt. 1970-18/1984-11).) Of course, there was lawful detailing, and Rosenthal's failure to account for any of it renders her opinions unreliable. *See Boca Raton Community Hosp., Inc. v. Tenet Health Care Corp.*, 582 F.3d 1227, 1233 (11th Cir. 2009) (excluding expert because plaintiffs' "injury and damages theory would still hold [defendant] accountable for even those portions of its overcharging that were not unlawful"); *Pomella v. Regency Coach Lines*, 899 F. Supp. 335, 342 (E.D. Mich. 1995) (excluding expert when assumptions conflicted with evidence).

Second, Rosenthal's assumption does not tie to Plaintiffs' ***allegations*** of fraudulent conduct. In its Order denying Defendants' motion to dismiss, the Court noted that the Complaint "alleges facts demonstrating that ***each Defendant*** engaged in unlawful acts supporting the causes of action therein." (*See* R&R at 96 (Dkt. 1025) (emphasis added).) Those allegations involve purported collaboration with KOLs and front groups "to unlawfully increase the demand for opioids." (Summit 3AC at ¶ 816 (Dkt. 1466).)[2] Plaintiffs readily admit that Rosenthal did not even consider such conduct and instead relied strictly on detailing visits. (Opp'n Br. at 7.) In fact, she conceded that, if she were to consider that conduct, "[i]t would require a new but-for analysis."

[2] Defendants' brief references Summit County's Complaint; Cuyahoga's complaint is nearly identical.

(Rosenthal Tr. at 164:20–165:18.)

Plaintiffs attempt to defend their choice to ignore the core allegations of their Complaint by arguing that detailing is "by far the most dominant form of promotion." (Opp'n Br. at 7.) Even assuming that is so, that says nothing about the capacity of detailing to influence prescribing as compared to other forms of promotion. In any event, Plaintiffs' assertion is odd given that they devote 186 paragraphs of their Complaint to front-group, KOL, and CME activities (the centerpiece of their "RICO Marketing Enterprise"), and less than a third of that amount to detailing.[3] Likewise, Plaintiffs claim that "detailing is a good proxy for total promotional effort" because "non-detailing activities complement detailing and will rise and fall together." (Opp'n Br. at 7–8.) But Rosenthal did not analyze each Defendant's conduct to determine whether that is actually true here, nor did she cite anything to support that assumption. And even if she had done so, Plaintiffs' position simply does not hold up for those Defendants that never engaged in such activities, or did so in varying degrees.

Third, Rosenthal did not differentiate the substance and context of each detailing visit. (*See id*. at 13.) Plaintiffs concede this point but claim that "[h]er model is intended to, and does, capture the ***average effect*** of all detailing." (*Id*. at 11 (emphasis added).) But analysis of the average effect is not informative. For example, Rosenthal's model would assign the same weight to a detail in which one Defendant's sales representative delivered information taken directly from a product's label and a hypothetical detail in which another Defendant's sales representative

[3] (*Compare* Summit 3AC at ¶¶ 12, 95, 153, 171, 182, 188, 190, 200, 212, 220, 223, 240–41, 253–54, 260–61, 298, 307, 346, 447–54, 473–74, 484–85, 487, 516, 556, 561, 567–69, 572–74, 579, 674, 676–79, 683–84, 703, 813, 1020, 1054, 1060 (Detailing Activities), *with id*. at ¶¶ 12, 46, 71, 78–79, 82, 86, 90, 99, 171, 182, 201, 203, 206–08, 210, 216–17, 228, 230–34, 237–38, 242, 244, 246, 248–49, 251, 257, 259, 267, 270–74, 280, 282–88, 346–436, 442, 445–46, 456–59, 462, 465, 473, 475–76, 478, 480, 486, 748, 772, 793, 816, 818–23, 825–27, 829–34, 836–38, 841, 843–46, 848, 880–81, 883–87, 893–94, 897, 945, 1020, 1054, 1075–76 (Front Group, KOL, and CME Activities).)

convinced a prescriber that opioids were risk free. Her model also ascribes the impact of detailing to all prescribers, making no exception for cancer centers or hospice facilities where even Plaintiffs concede opioid therapy is appropriate. (*See, e.g.*, Schumacher Rpt. at 63 (Dkt. 1999-23/2000-23) (affirming that "aggressive use of opioids" is appropriate for cancer and palliative-care patients).)

Likewise, Rosenthal does not account for rivalrous promotion that is designed to shift prescribers from one opioid product to another, not to expand the opioid market. Plaintiffs claim "there will be market-increasing spillovers even from purely rivalrous marketing." (Opp'n Br. at 13.) But even if this unsupported assertion were true here, literature cited by Rosenthal shows that rivalrous marketing would have a smaller effect on market expansion than non-rivalrous marketing would have. (*See* Rosenthal Rpt. at ¶ 33.)

The cases Plaintiffs cite are inapposite. Plaintiffs highlight a single sentence from *In re Neurontin Marketing and Sales Practices Litigation* endorsing Rosenthal's assumption "that the allegations in the complaint are true." 712 F.3d 21, 30 (1st Cir. 2013). They conveniently omit that Rosenthal's analysis in *Neurontin* "***excluded*** the many off-label prescriptions by physicians who received legitimate on-label promotion." *Id*. (emphasis added). So she did not assume there—as she does here—that all marketing was fraudulent. As for *Avery Dennison Corp. v. Four Pillars Enter. Co.*, the Sixth Circuit held that "a *Daubert* challenge ***may certainly*** include arguments that the expert theory is invalid because it has no basis in fact," but concluded that the district court there did not abuse its discretion in finding sufficient support for the expert's theories. 45 Fed. App'x 479, 487 (6th Cir. 2002) (emphasis added). Here, however, there is no support for the absurd assumption that ***all*** promotion was fraudulent.

Finally, Plaintiffs cite cases suggesting that criticisms about various inputs into a regression model go to weight, not admissibility. (Opp'n Br. at 12.) But Plaintiffs mischaracterize

Defendants' argument. Defendants' issues with Rosenthal's inputs highlight her flawed assumptions that contravene both the factual record and her own testimony. These are methodological failures that render her opinions unreliable and require this Court to prevent them from going to a jury. *See Williams v. Mosaic Fertilizer, LLC*, 889 F.3d 1239, 1250 (11th Cir. 2018).

B. Rosenthal's Opinions Are Impermissibly Based on a Theory of Aggregate Proof that has No Support in the Facts or Law.

Although Rosenthal's model does not permit a separate assignment of liability to each Defendant, Plaintiffs maintain that was never her task; rather, she used "an aggregate model to assess the effects of Defendants' marketing on opioid sales" as a whole. (Opp'n Br. at 8–9.) Such a model, however, cannot be used to assign liability to Defendants collectively, based on collective marketing, without regard to whether any of their individual acts were lawful or fraudulent.

First, Plaintiffs maintain that an aggregate model is reliable because "[i]t smooths out variability in the data" that otherwise would lead to inaccurate results. (*Id*. at 8.) This argument is meritless. For one thing, one cannot tell whether an aggregate model would be "far more reliable" than a disaggregated one because Rosenthal never conducted that analysis and does not even "know whether an individual manufacturer-level model would be feasible." (Rosenthal Tr. at 160:7–11.) For another thing, by "smooth[ing] out variability in the data," Rosenthal's model treats all Defendants the same, despite different products, conduct, and promotional periods.

Second, Plaintiffs argue that their RICO claims do not require proof that a prescriber relied on a particular Defendant's alleged fraudulent conduct. (Opp'n Br. at 9.) But in analogous situations, courts repeatedly have rejected attempts to use aggregate proof as evidence of prescriber reliance on fraudulent marketing.[4]

[4] *See, e.g., Sidney Hillman Health Ctr. of Rochester v. Abbott Labs*., 873 F.3d 574, 577 (7th Cir. 2017) (noting that an aggregate regression model could not account for off-label prescriptions that were "beneficial to patients," and "[i]t would not be proper to calculate damages by assuming that all off-label prescriptions are improper"); *In re*

Neurontin, the only case Plaintiffs cite, misses the mark. 712 F.3d at 29–30. First, that case is an outlier; virtually all other false-marketing cases have rejected the use of aggregate models. *See, e.g.*, *Sidney Hillman*, 873 F.3d at 577. Nor does *Neurontin* have any bearing on the fundamentally different circumstances at issue here. To start, that case involved a regression analysis purporting to measure the effect of marketing by a ***single defendant*** of a ***single drug*** over a discrete time that the drug was on the market—not the dozens of medications marketed by numerous Defendants at different times dating back to 1995, as here. More problematic still, in *Neurontin*, Rosenthal did not assume that ***all*** marketing was fraudulent; rather, her analysis merely assumed that ***off-label*** marketing was fraudulent. The *Neurontin* court permitted her assumption because the plaintiffs presented evidence that the drug at issue was medically ineffective for the promoted off-label uses. Thus, all of the off-label prescriptions used in the model were deemed excessive. *See id.* at 47. But here, there is no legal or factual basis for Rosenthal's assumption that all opioid detailing was misleading, that any uses (off-label or not) were ineffective, or that every opioid medication prescribed since 1995 was excessive or medically unnecessary. In fact, Plaintiffs do not dispute that they have ***no evidence*** to demonstrate which, if any, of the opioid prescriptions that Rosenthal attributes to the manufacturers were medically improper. (*See* Rosenthal Tr. at 150:8-153:5.) Put simply, the facts in this case do not support the assumptions that made Rosenthal's aggregate-proof model viable in *Neurontin*.

In any event, Plaintiffs have not brought ***only*** RICO claims: they have in fact brought several more. And except for their conspiracy claim, all of their claims require proof that ***each***

Bextra & Celebrex Mktg. Sales Practices & Prod Liab. Litig., 2012 WL 3154957, at *7 (N.D. Cal. Aug. 2, 2012); *In re Vioxx Prod Liab. Litig.*, 2010 WL 11570867, at *7 (E.D. La. Mar. 31, 2010); *Beck v. Edward D. Jones & Co.*, No. 85-1292, 1990 WL 120745, at *1 (C.D. Ill. May 8, 1990).

Defendant's specific conduct proximately caused their injuries.[5]

Third, Plaintiffs defend Rosenthal's admission that her model would break down if it were disaggregated by arguing that she "is able to back out particular defendants from her model and still calculate overall impact." (Opp'n Br. at 11.) But backing out particular Defendants ***after*** estimating the "average effect" of all manufacturer detailing is precisely the problem: it still does not show the causal effect of any particular Defendant's allegedly fraudulent marketing. All Rosenthal's model purports to show is an aggregate correlation between ***all*** manufacturer detailing and sales. (Rosenthal Tr. at 441:13–442:1, 439:20–440:1; Rosenthal Rpt. at Table 3.) It cannot show individual liability, and thus, it is unhelpful to the trier of fact.

C. Rosenthal Created a Model that Ignores Reality and Leads to Irrational Conclusions that Conflict with All Authoritative Economic Literature.

Plaintiffs decry Defendants' claim that Rosenthal manipulated her model to ensure her conclusions, yet they fail to reconcile her model with economic reality. Rosenthal's negative depreciation rate provides a stark example of how her model is designed to reach Plaintiffs' ends.

Literature shows that the effects of marketing depreciate over time. (*See* Mark Hirschey, *Intangible Capital Aspects of Advertising and R&D Expenditures*, The Journal of Industrial Economics 30(4) at 375 (1982) (Dkt. 1913-11).) Rosenthal cites other literature showing that "promotional effects are long-lived." (Rosenthal Rpt. at ¶ 33.) But as she candidly admits, there is ***no*** authority for her "negative depreciation rate," which purports to show that the effects of past

[5] *See, e.g.*, *In re Bendectin Litig.*, 857 F.2d 290, 310 (6th Cir. 1988) ("the requirement under the substantial factor test of section 432(2) that plaintiff first prove that the conduct of ***each defendant***, acting alone, was sufficient to be a possible proximate cause of the injury"); *Pang v. Minch*, 559 N.E.2d 1313, 1324 (Ohio 1990) ("the burden of proof is upon the plaintiff to demonstrate that the conduct of each defendant was a substantial factor in producing the harm"); *Volbers-Klarich v. Middletown Mgt., Inc.*, 929 N.E.2d 434, 440 (Ohio 2010) (fraud requires "injury proximately caused by the" plaintiff's "justifiable reliance" on the defendant's fraudulent statements); *Sergeants Benevolent Ass'n Health & Welfare Fund v. Sanofi-Aventis*, 806 F.3d 71, 94 (2d Cir. 2015) ("[A] RICO plaintiff must always show that the defendant's conduct caused an actual, quantifiable injury.").

opioid promotion will ***increase*** over time. (Rosenthal Tr. at 247:24–249:10, 259:25–260:6.) Under her model, a visit to a doctor in 1995 would affect that doctor's prescribing decision today more than a visit conducted yesterday would. (*See id*. at 253:17–254:17.) Such a theory of forever-ascending marketing potency is incredible, in the literal sense of the word.

Plaintiffs try justifying Rosenthal's negative depreciation rate by arguing that opioids are addictive and "some patients who use opioids require and/or seek more opioids over time." (Opp'n Br. at 15, *quoting* Rosenthal Rpt. at ¶ 72 n. 103.) But addiction can explain only increasing ***consumption*** of opioids over time; it in no way explains how the ***effects of opioid marketing*** increase over time. Moreover, this addiction theory fails to square with studies concerning other addictive products, like cigarettes and alcohol, which universally have ***never*** found negative depreciation rates. (*See, e.g.*, Ex. 1, Qi, "The Impact of Advertising Regulation on Industry: The Cigarette Advertising Ban of 1971," RAND Journal of Economics 44, no. 2 (2013), 215–248.)[6]

Plaintiffs argue that Rosenthal "did not assume" a negative depreciation rate; "she ***found*** negative depreciation" through her model. (Opp'n Br. at 15.) But she has not. Instead, as she admitted, she designed her model to fit the data she was given. (*See* Rosenthal Tr. at 136:16–137:4.) She thus ***constructed*** a model that employed a negative depreciation rate to try to justify her model and results, regardless of whether that rate makes any sense. Rosenthal also had to exclude relevant variables to make her model work for Plaintiffs. She includes only the total stock of detailing contacts (as adjusted by the negative-depreciation factor) and a simple price index, ignoring the host of other explanatory variables that literature shows would be expected to affect

[6] Defendants' experts also firmly established that there is no economic literature to support Rosenthal's negative depreciation rate, which is inconsistent with industry patterns. (*See* Kyle Rpt. at ¶ 130 (Dkt. 1939-19/1936-19); Ex. 2, Cantor Rpt. at ¶ 18; Cockburn Rpt. at ¶¶ 42, 43, 75 (Dkt. 1939-8/1936-8); Ketchum Rpt. at ¶¶ 17, 180, 200, 203 (Dkt. 1939-16/1936-16); Ex. 3, Grabowski Rpt. at ¶¶ 11, 17, 90, 91.)

prescribing decisions. (*See* Kyle Rpt. at ¶¶ 141–44.) For instance, Rosenthal does not include changing medical norms in her analysis; thus, it is hard to see how a detail in 1995 would have more influence today if literature in 2012 undermined the information provided in that detail.

This methodological failure renders her entire model unworkable. Although her model appears to "fit" the data graphically, it in fact says nothing about the extent to which detailing can explain MME sales. Indeed, replacing the detailing visits used in her model with nearly any data set containing a positive series of numbers, which when added together would create a stock set of data, "explains" MME sales just as well as detailing does. For example, one can randomly scramble all of Rosenthal's detailing inputs or replace them with data concerning the price of gold or average annual Cleveland Indians baseball game attendance. Her model would find a causal relationship between those data and MME sales. (Ketchum Rpt. at ¶ 179; Marais Rpt. at ¶¶ 26–27, 30–32 (Dkt. 1936-24/1939-24).)[7] That, of course, is absurd.

Rosenthal's manipulation of her model is further illustrated by its failure to conform to real-world events; for example, her model counterintuitively shows ***decreased*** MME sales after the American Pain Society issued a statement supporting opioid use (Rosenthal Tr. at 311:18–314:3) and ***increased*** sales after hydrocodone was rescheduled from Class III to Class II (*id*. at 316:18–317:19). Plaintiffs respond by stating that Rosenthal "did not set out to measure the effects of individual events" and that, "to the extent that a change in medical standards … is the product of Defendants' misconduct, then such a change is appropriately" excluded. (Opp'n Br. at 17.) Again, Plaintiffs miss the point. Defendants' illustration has nothing to do with what inputs

[7] Plaintiffs fail to address these examples apart from attacking Professor Margaret Kyle's sunspot illustration, asserting that she cherry-picked data for her illustration. It certainly is not the case, however, that Professor Kyle picked sunspot patterns that resemble MME sales; indeed, the only similarity driving the comparison is that both patterns have two turning points. (*Compare* Kyle Rpt. at Figure 37, *with* Rosenthal Rpt. at Figure D.7.) This illustration and the others that Plaintiffs do not address show that Rosenthal constructed a model that can fit a variety of data patterns by allowing it to pick depreciation rates and turning points that maximize fit.

Rosenthal should have included in her model, but rather shows that Rosenthal's conclusions fail to reflect reality. Such a model that prioritizes results over logic is biased and unreliable, and should not be presented to a jury.

D. Plaintiffs have Failed to Rebut the Numerous Methodological Flaws Permeating Rosenthal's Models.

1. *Rosenthal's "Thought Experiment" is Inadmissible.*

Rosenthal's "thought experiment" is designed to show "that increased sales over the relevant time period cannot be explained by clinical need." (Opp'n Br. at 4.) Defendants' opening brief showed that Rosenthal (1) has no medical qualifications to support this opinion, (2) relied on Plaintiffs' other experts' flawed medical assumptions, and (3) did nothing more than apply simple math in an untested methodology that she created. (Opening Br. at 13–16.) Plaintiffs raise only two counterarguments; neither withstands scrutiny.

First, Plaintiffs contend that Rosenthal conducted a "simulation," which she described as a "pretty common approach" to assess proposed policies. (Opp'n Br. at 18.) At her deposition, she identified three other simulations she had conducted. (Rosenthal Tr. at 623:1–624:31 (Dkt. 1970-12/1984-5).) Each centered on assessing financial matters that are within her economic ken.[8] Whether increased opioid sales can be attributable to clinical need, however, is not.

Second, Plaintiffs cite cases showing that reliance on other experts is acceptable in certain circumstances. *See, e.g.*, *Buck v. Ford Motor Co.*, 810 F. Supp. 2d 815, 844 (N.D. Ohio 2011). Nevertheless, though "an expert's testimony may be formulated by the use of facts, data and conclusions of other experts," an expert cannot "merely regurgitate another expert's opinion." *Id.*

[8] (*See* Ex. 4, Conti *et al*., "Generic prescription drug price increases: which products will be affected by proposed anti-gouging legislation?," Journal of Pharmaceutical Policy and Practice 11 no. 1 (2018); Ex. 5, Meara. *et al*., "State and Federal approaches to health reform: What works for the working poor?," National Bureau of Economic Research (2008); Ex. 6, Pandya *et al*., "Cost-effectiveness of Financial Incentives for Patients and Physicians to Manage Low-Density Lipoprotein Cholesterol Levels," JAMA Network 1 no. 5 (2018).).

For example, in a malpractice case, a surgeon testifying against a defendant radiologist charged with failing to diagnose the plaintiff's cancer may rely on another radiologist's diagnosis of an x-ray to testify that the cancer was too advanced for surgery; but he cannot rely on the radiologist to testify that the defendant should have discovered the cancer sooner. *Dura Auto. Sys. of Ind., Inc. v. CTS Corp.*, 285 F.3d 609, 613 (7th Cir. 2002). So too here. Rosenthal is not a medical doctor qualified to assess the clinical need for opioids. (*See* Rosenthal Tr. at 14:2–16:3.) In opining that increased opioid sales are not explained by clinical need, she based "[a]ll of the underlying assumptions" on the "opinions of the plaintiffs' clinical experts." (Rosenthal Rpt. at ¶ 92.) "A scientist, however well credentialed [s]he may be, is not permitted to be the mouthpiece of a scientist in a different specialty." *Dura Auto Sys.*, 285 F.3d at 614.

This is particularly problematic when, as here, Plaintiffs' medical experts endorse an overly narrow view of the permissible uses of opioids that lacks support in any prevailing medical standards. (*See* Opening Br. at 14.) Plaintiffs fail to rebut Defendants' arguments regarding the inherent flaws in ***their*** opinions. And Plaintiffs also fail to justify her reliance on Dr. Parran, whom Plaintiffs withdrew, in light of *Mike's Train House, Inc. v. Lionel, L.L.C.*, 472 F.3d 398, 409 (6th Cir. 2006) (excluding testimony for expert's partial reliance on nontestifying expert's conclusions). These errors render Rosenthal's model unreliable.

2. *Rosenthal's Models Suffer Other Methodological Failures.*

Plaintiffs do not attempt to rebut Defendants' arguments regarding key variables that Rosenthal omitted in her analysis. (Opening Br. at 17–18.) They instead challenge only Defendants' arguments concerning stationarity and endogeneity.

Plaintiffs assert that "Defendants' motion makes no showing that Professor Rosenthal's model has any issues regarding stationarity." (Opp'n Br. at 19.) Not so. Defendants argued—and Rosenthal admits—that "'nonstationarity' is one of the 'well-known limitations of any time

series model" (like Rosenthal's) and can produce "spurious results." (Opening Br. at 16, *quoting* Rosenthal Tr. at 134:10–25, 138:16–20.) Even so, Plaintiffs assert that Rosenthal found no stationarity issues after performing a "unit root test." (Opp'n Br. at 19.) But how do we know? She included neither a description of this test nor the results in her report or backup data. (*See* Rosenthal Tr. at 137:8–23, 138:21–139:7.) Two of Defendants' experts, however, performed unit-root tests; their results show that Rosenthal's model in fact suffers from nonstationarity. (*See* Kyle Rpt. at ¶¶ 116–17; Ex. 2, Cantor Rpt. at ¶¶ 77–78.)

As for endogeneity, Plaintiffs claim that aggregation avoids the problem. (Opp'n Br. at 19.) But economic literature shows otherwise. Indeed, "[m]any econometrics textbooks use the endogeneity of aggregate supply and demand to illustrate the difficulty of identifying how a change in price affects demand." (Kyle Rpt. at ¶ 120.)[9] Rosenthal admits that she never tested for endogeneity, even though she concedes that such tests exist. (Rosenthal Tr. at 336:16–337:21.) Although Plaintiffs dispute the utility of those tests in cases involving multiple drugs, one of Defendants' experts tested for endogeneity and found that, in Rosenthal's direct model, "the relationship between next month's detail contacts and current MMEs is positive and statistically significant," which "suggests that opioid MMEs explaining the variation in manufacturer detailing is just as plausible as Professor Rosenthal's finding that manufacturer detailing explains the variation in opioid MMEs." (Kyle Rpt. at ¶ 121.) Rosenthal's failure even to test for endogeneity bias renders her opinions unreliable.

II. CONCLUSION

For these reasons, the Court should exclude Rosenthal's opinions and proposed testimony.

[9] (*See e.g.*, Ex. 7, Murray, "Econometrics: A Modern Introduction," 552–53 (2006); Ex. 8, Angrist & Krueger, "Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments," (2001).)

Dated: August 16, 2019

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[10] Teva Pharmaceutical Industries Ltd., Allergan plc, and Mallinckrodt plc are respectively an Israeli corporation, Irish holding company, and an Irish company that are not subject to and contest personal jurisdiction for the reasons explained in their motions to dismiss for lack of personal jurisdiction; they are specially appearing to join this motion, and thus, they do not waive and expressly preserve their personal jurisdiction challenges.

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CERTIFICATE OF SERVICE

I certify that on August 16, 2019 2019 a copy of the foregoing **MANUFACTURER DEFENDANTS' REPLY IN SUPPORT OF MOTION TO EXCLUDE MEREDITH ROSENTHAL'S OPINIONS AND PROPOSED TESTIMONY** was served via email pursuant to the Court's order.

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